

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-277092

(43)Date of publication of application : 20.10.1998

(51)Int.Cl.

A61F 13/54  
A41B 13/04

(21)Application number : 09-090697

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(22)Date of filing : 09.04.1997

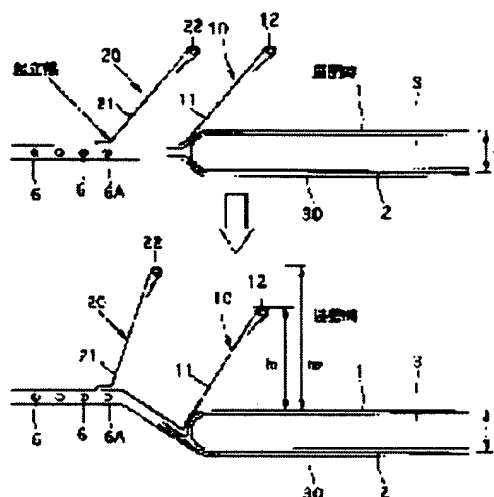
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## (54) DISPOSABLE PAPER DIAPER

## (57)Abstract:

PROBLEM TO BE SOLVED: To improve a side leakage prevention effect.

SOLUTION: An absorbent 3 is provided between a liquid permeable top sheet 1 and a liquid impermeable back sheet 2, and an elastic expansion and contraction member 6 for a gasket cuff and a second barrier cuff 20 provided with the elastic expansion and contraction member 22 near a tip to be erected to a wearing person side at the time of mounting by the contraction force are provided in an easily deformable area on an outer side from both side edges of the absorbent 3 along a longitudinal direction in at least an area equivalent to a crotch part. A first barrier cuff 10 provided with the elastic expansion and contraction member 12 near the tip to be erected to the wearing person side at the time of mounting by the contraction force is provided on a produced width direction center side from the second barrier cuff 20. An erection line from the easily deformable area of the second barrier cuff 20 is present on the product width direction center side from the width direction middle site of the contraction force acting area of the elastic expansion and contraction member 6 for the gasket cuff.



## LEGAL STATUS

[Date of request for examination] 21.05.1999

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 3171813

[Date of registration] 23.03.2001

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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## CLAIMS

[Claim(s)]

[Claim 1] In the disposable diaper which has an absorber between a liquid permeability top sheet and a non-liquid permeability backseat, and has barrier cuffs on both sides of a product further (1) It is the \*\*\*\*\* field of the method of outside [ edges on both sides / of said absorber ], and a longitudinal direction is met in a crotch section equivalent region at least. The elastic flexible member for; gasket cuffs, Have an elastic flexible member near a tip and it has the 2nd barrier cuffs which stand up to a wearer side according to the shrinkage force at the time of wearing. (2) In a crotch section equivalent region, it has an elastic flexible member near a tip in a product cross direction central site from said 2nd barrier cuffs along with a longitudinal direction at least. It has the 1st barrier cuffs which stand up to a wearer side according to the shrinkage force at the time of wearing. (3) Disposable disposable diaper with which the standing-up line from the \*\*\*\*\* field of said 2nd barrier cuffs is characterized by what is been in a product cross direction central site from the crosswise middle of the field for contraction laborious works of said elastic flexible member for gasket cuffs.

[Claim 2] Said elastic flexible member for gasket cuffs is a disposable disposable diaper according to claim 1 with the standing-up line of the 2nd barrier cuffs near [ which keeps spacing crosswise, has two or more, and carries out a product cross direction central-site location most ] the elastic flexible member for gasket cuffs.

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the disposable diaper which aims at wearing using a trousers type or joint tapes, such as a disposable disposable diaper, for example, the so-called sweat pants etc.

[0002]

[Description of the Prior Art] In the process which shifts to a small child from a suckling, a disposable disposable diaper, especially sweat pants are used in order to promote a disposable diaper detached building.

[0003] Various proposals are made about the trousers type disposable diaper of this kind, or the disposable diaper using a joint tape.

[0004] Also in which disposable diaper, it is a property required for a product to prevent the leakage of the body fluid from waist, and in order to prevent the horizontal leakage of a loose passage, let it be a forming-barrier cuffs general-purpose technique in recent years.

[0005] In many products of current marketing, although barrier cuffs are each one \*\* side, in JP,63-21901.A and the utility model registration No. 2523726 official report, preparing the barrier cuffs of each two \*\* sides is proposed.

[0006]

[Problem(s) to be Solved by the Invention] However, although there was the horizontal leakage prevention effectiveness from one barrier cuffs even if it only prepared the barrier cuffs of each two \*\* sides, it not necessarily turned out that the effectiveness is not remarkable.

[0007] Therefore, the technical problem of this invention has the horizontal leakage prevention effectiveness in offering the disposable diaper which appears notably.

[0008]

[Means for Solving the Problem] Invention of this invention which solved the above-mentioned technical problem according to claim 1 In the disposable diaper which has an absorber between a liquid permeability top sheet and a non-liquid permeability backseat, and has barrier cuffs on both sides of a product further (1) It is the \*\*\*\*\* field of the method of outside [ edges on both sides / of said absorber ], and a longitudinal direction is met in a crotch section equivalent region at least. The elastic flexible member for; gasket cuffs, Have an elastic flexible member near a tip and it has the 2nd barrier cuffs which stand up to a wearer side according to the shrinkage force at the time of wearing. (2) In a crotch section equivalent region, it has an elastic flexible member near a tip in a product cross direction central site from said 2nd barrier cuffs along with a longitudinal direction at least. It has the 1st barrier cuffs which stand up to a wearer side according to the shrinkage force at the time of wearing. (3) The standing-up line from the \*\*\*\*\* field of said 2nd barrier cuffs is the disposable disposable diaper characterized by what is been in a product cross direction central site from the crosswise middle of the field for contraction laborious works of said elastic flexible member for gasket cuffs.

[0009] Invention according to claim 2 is a disposable disposable diaper according to claim 1 which has the standing-up line of the 2nd barrier cuffs near [ which said elastic flexible member for gasket cuffs keeps spacing crosswise, has it two or more, and carries out a product cross direction central-site location most ] the elastic flexible member for gasket cuffs.

[0010]

[Embodiment of the Invention] It explains in full detail further, referring to the gestalt of the operation which shows this invention below to a drawing.

[0011] Drawing 1 and drawing 2 are what showed the 1st example of the trousers type disposable diaper of this invention, and the absorber element 4 of the structure which wrapped the absorber 3 by the non-liquid permeability backseat 2 which consists of a liquid permeability top sheet 1 which consists of a nonwoven fabric etc., a polyethylene sheet, etc. is formed in the body backseat 30.

[0012] The body backseat 30 is a continuation sheet which reaches the whole external surface of a final product and specifies a whole configuration. for example, it consists of an ingredient of a cross direction and the cross direction in which elastic elasticity is shown in an one direction at least, and whenever [ elastic flexible ] is 150% or more. The body backseat 30 in an example is fabricated by the sandglass configuration. As for this body backseat, permeability and waterproof (water repellence) to have both property at least on the other hand more preferably are desired from points, such as MURE prevention. Although the material can be chosen suitably, as the example, the rayon span ball-race nonwoven fabric which mixed with cotton a polypropylene subject's heat welding fiber and rayon fiber. and the melt blow nonwoven fabric which makes urethane and the ingredient of a polyisoprene-rubber system a subject can be unified by heat welding, ultrasonic jointing, junction by hot melt adhesive, etc., and what uses the former nonwoven fabric for a wearer's skin side can be mentioned.

[0013] Now, to said body backseat 30, the 1st barrier cuffs 10 are fixed to a product cross direction central site, and the 2nd barrier cuffs 20 are being fixed outside.

[0014] These 1st and 2nd barrier cuffs 10 and 20 have the 1st and 2nd barrier sheets 11 and 21 in which non-liquid permeability or water repellence is shown preferably. The standing-up line of the 1st barrier sheet 11 is in the side edge section of an absorber 3, the standing-up line of the 2nd barrier sheet 21 is in the \*\*\*\*\* (that is, absorber 3 does not exist) field of the method of outside [ side edge / of an absorber 3 ], and the way (below, direction of inside and outside is said about the cross direction, as long as there is no notice) part is being fixed with hot melt adhesive etc. each outside to the body backseat 30.

[0015] Furthermore, it is fixed with hot melt adhesive etc. under the elongation, and said inside part is made, as for the 1st and 2nd barrier sheets 11 and 21, for the elastic flexible members 12 and 22 for barrier cuffs which the inside part becomes from yarn rubber etc. so that it

may stand up to a wearer side to have stood up as a free part (standing-up part) in the wear condition. Although the 1st and 2nd barrier sheets 11 and 21 have reached to the product order edge, the elastic flexible members 12 and 22 for barrier cuffs occupy the crotch section at least. If the 1st and 2nd barrier cuffs 10 and 20 meet the longitudinal direction in the crotch section equivalent region at least for horizontal leakage prevention, it is sufficient for them, so that this example may show.

[0016] The waist elastic flexible members 5A and 5B are formed before and after the product. The waist elastic flexible members 5A and 5B in the example of illustration are band-like things, it is covered with the liquid permeability top sheet 1 and the 1st and 2nd barrier sheets 11 and 21, and a crosswise lateral part (a part for the edge flank of a product) and longitudinal direction both ends (way section outside a product) are being fixed with hot melt adhesive etc. Therefore, it is made to have functioned as a barrier of body fluid at the time of wear (order gasket cuffs are constituted).

[0017] Between the body backseat 30 and the 2nd barrier sheet 21, in order that the elastic flexible member 6 for gasket cuffs may make the hit to a wearer's skin soft in the example of illustration, spacing is kept crosswise and it is specifically being fixed to both both [ one side or ] by two or more under expanding with hot melt adhesive etc. four, as the detail is shown in drawing 2.

[0018] For the 1st barrier sheet 11, the lateral part is the elastic flexible members 6 and 6 for gasket cuffs from the side edge of an absorber 3. -- It extends [ near / as for which a group carries out a product cross direction central-site location most / the elastic flexible member 6A for gasket cuffs ], and is fixed to the liquid permeability top sheet 1 and the body backseat 30 with hot melt adhesive etc. The 2nd barrier sheet 21 covers a part of radial-border section of the 1st barrier sheet 11, it is fixed with hot melt adhesive etc. in the cover part, the boundary line of the immobilization is made into the standing-up line of the 2nd barrier cuffs 20, and the location of the standing-up line is carried out near [ which carries out a product cross direction central-site location ] the elastic flexible member 6A for gasket cuffs. Suitably, it considers as the location of less than 10mm at right and left of elastic flexible member 6A for gasket cuffs.

[0019] In a trousers type case, the disposable diaper of this configuration is folded up forward and backward bordering on level Chuo Line of drawing 1, and when the body backseat 30 order both-sides section is mutually fixed with heat sealing etc., it is produced commercially. Or a joint tape is fixed and produced commercially by the posterior part both sides of a product in the thing of the mode with which it equips using a joint tape.

[0020] Anyway, when carrying out from an expansion condition at the time of wearing, the free parts of the 1st barrier cuffs 10 and the 2nd barrier cuffs 20 stand up, respectively according to the shrinkage force of the elastic flexible members 12 and 22 for barrier cuffs so that drawing 2 may show caudad. Moreover, elastic flexible members 6 and 6 for gasket cuffs -- (also including 6A) Since an absorber 3 does not exist since a shrinkage force acts, but the left part of elastic flexible member 6A for gasket cuffs constitutes the \*\*\*\*\* field, it comes to be raised in a wearer side so that it may stick by a wearer's skin.

[0021] Consequently, temporarily, even if the die length of the free parts of the 1st barrier cuffs 10 and the 2nd barrier cuffs 20 is the same They are the elastic flexible members 6 and 6 for gasket cuffs so that drawing 2 may show caudad. -- (also including 6A) The free part of the 2nd barrier cuffs 20 comes to stand up more greatly according to a shrinkage force. Standing-up height h2 from the liquid permeability top sheet 1 of a standing-up edge Standing-up height h1 of the 1st barrier cuffs 10 It becomes high.

[0022] The advantage as degree account is brought about in this mode.

(1) Since there are the 2nd barrier cuffs 20 besides the 1st barrier cuffs 10, the body fluid (a loose passage is also included) it became impossible that is prevented with the 1st barrier cuffs 10 can be prevented at the 2nd barrier cuffs 20.

[0023] (2) Elastic flexible members 6 and 6 for gasket cuffs -- (also including 6A) Since the free part of the 2nd barrier cuffs 20 stands up more greatly according to a shrinkage force, it is  $h2 > h1$  of drawing 2, for example. When it is, the function which prevents the body fluid (a loose passage is also included) it became impossible that is prevented with the 1st barrier cuffs 10 at the 2nd barrier cuffs 20 appears more notably.

[0024] (3) Since the free part of the 2nd barrier cuffs 20 stands up in the direction of a vertical ( drawing 2 criteria) more, the body fluid which spacing or space of the free part of the 1st barrier cuffs 10 and the free part of the 2nd barrier cuffs 20 became large (expansion condition), could not prevent with the 1st barrier cuffs 10, and exceeded this can be held now in the meantime, and the function prevented at the 2nd barrier cuffs 20 appears notably.

(4) Since it stops interfering as a result of [ of (3) ] the above (2) even if it weakens the shrinkage force of the elastic flexible member 22 for barrier cuffs of the 2nd barrier cuffs 20, it is releasable from too much pressure to a wearer.

[0025] (5) The elastic flexible member 6 for gasket cuffs and 6 -- (also including 6A) Even if it heightens the standing-up effectiveness of the 2nd barrier cuffs 20, and also it makes the circumference part of a foot of a product fit a wearer and body fluid exceeds the 2nd barrier cuffs 20 by itself, while being able to prevent there When the 2nd barrier cuffs 20 carry out humidity by part for liquid, the humidity to a way is prevented outside beyond it, and dampproofing is raised. Furthermore, since the field for contraction laborious works fits a wearer's circumference part of a foot, there is nothing of the elastic flexible member 6 for gasket cuffs and 6 -- that the free part of the 1st barrier cuffs 10 and the free part of the 2nd barrier cuffs 20 are turned up outside more than it, and overflow, and it always stands up toward the inside, and the function of original barrier cuffs is demonstrated good.

[0026] (6) Since the above-mentioned function is perfectly demonstrated by adding the elastic flexible member 6 for gasket cuffs, and 6 --, the cross direction of the free part of the 2nd barrier cuffs 20 is small made from the free part of the 1st barrier cuffs 10, and there is almost no rise of cost. and. moreover, it becomes what was extremely excellent in cost, considering balance with the whole function. Since the \*\*\*\*\* field between the standing-up line of the 1st barrier cuffs 10 and the standing-up line of the 2nd barrier cuffs 20 is specifically interlocked with the free part of the 2nd barrier cuffs 20 when the free part of the 1st barrier cuffs 10 sets to 30-50mm, the free part of the 2nd barrier cuffs 20 is made smaller 20-40mm than the free part of the 1st barrier cuffs 10.

(7) By detaching between the standing-up line of the 1st barrier cuffs 10, and the standing-up lines of the 2nd barrier cuffs 20 Elastic flexible members 6 and 6 for gasket cuffs -- A pocket (space between the free parts of each barrier cuffs) is made according to a shrinkage force between the 1st barrier cuffs 10 and the 2nd barrier cuffs 20. The function which prevents the body fluid (a loose passage is also included) which was not able to be prevented at the 1st barrier cuffs 10 at the 2nd barrier cuffs 20 appears notably. As for the standing-up line of the 1st barrier cuffs 10, and the standing-up line of the 2nd barrier cuffs 20, specifically, it is desirable to make it estrange 10-40mm.

[0027] (Modification: Each of these examples are within the limits of claim 1 and invention of two) Drawing 3 is the example which formed the barrier sheet 40 which constitutes the 1st barrier cuffs 10 and the 2nd barrier cuffs 20 with the sheet of one sheet which continues crosswise. In the 2nd barrier cuffs 20, a barrier sheet 40 is double.

[0028] Drawing 4 extends the 1st barrier sheet 11 of the 1st barrier cuffs 10, and fixes the 2nd barrier sheet 11 of the 2nd barrier cuffs 20

on it.

[0029] Drawing 5 is the example which formed the barrier sheet 41 which constitutes the 1st barrier cuffs 10 and the 2nd barrier cuffs 20 with the sheet of one sheet which continues crosswise. However, a product carries out [ the liquid permeability top sheet 1 ] method extension of outside, and the barrier sheet 41 is being fixed to this.

[0030] Drawing 6 is the example which there is no body backseat 30, made the non-liquid permeability backseat 2 the appearance of a product, and fixed the 1st barrier cuffs 10 and the 2nd barrier cuffs 20 to this. Thus, in this invention, it does not make it indispensable to use the body backseat 30. Moreover, as long as a non-liquid-permeable sheet has the body backseat 30, the non-liquid permeability backseat 2 is omissible. In this case, as for \*\*\*\*, body backseat 30 the very thing constitutes the non-liquid permeability backseat of this invention.

[0031] On the other hand, if it returns to drawing 2, although the standing-up line of the 2nd barrier cuffs 20 is in the location corresponding to elastic flexible member 6A for gasket cuffs in this example, as long as it is in a product cross direction central site from the crosswise middle of the field for contraction laborious works of the elastic flexible members 6, 6, 6, and 6A for gasket cuffs, the above-mentioned function will be demonstrated fundamentally and the 2nd barrier cuffs 20 will stand up.

[0032] (Example of the manufacture approach) The example of the manufacture approach of the example of drawing 1, drawing 2, drawing 4, and drawing 6 is explained below. In addition, what is necessary is to make the part of a sign 30 into the non-liquid permeability backseat 2 in the following drawings, and just to understand the part of a sign 4 as a liquid permeability top sheet 1 in the example of drawing 6, since the body backseat 30 does not exist.

[0033] That is, in the conventional example (said each example of an official report), as shown in drawing 7, prepare barrier sheet 50A of one per one side of a product, and in at least three places, usually set this to four places, he is trying to fix to half-finished products with hot melt adhesive etc. in the location shown by sign 50B of illustration while by return, and they are not a manufacturing facility and the thing which was excellent in industrial engineering. Furthermore, barrier cuffs are the duplex things of a barrier sheet, there is the part rigidity and cost increases.

[0034] However, as shown in drawing 11 which is drawing 10 and its important section enlarged drawing In the production line which conveys a band-conveyor 60 top intermittently on the body backseat 30 in the state of the half-finished products which have arranged the absorber element 4 and 4 -- Slitting machines 51, 51, and 51 cut the original barrier sheet 50 for the barrier cuffs of the predetermined cross direction in the three cross direction beforehand. While forming the 1st barrier sheet 11 of two sheets, and the 2nd barrier sheet 21 and 21 of 11 or 2 sheets and turning up near the tip of the standing-up part of each of this barrier sheet The elastic flexible members 12 and 22 for barrier cuffs corresponding to the clinch part in the condition of having fixed with hot melt adhesive etc. The 2nd barrier sheet base is fixed to the 1st barrier cuffs in piles as the base side (lateral part) of each of said barrier sheet is fixed to half-finished products, respectively and it is shown in drawing 1, drawing 2, drawing 4, and drawing 6 in that case.

[0035] In drawing 10 and drawing 11, a sign 52 is the delivery machine of the elastic flexible members 12 and 22 for barrier cuffs. The outline of the fixed structure of the barrier cuffs corresponding to the example corresponding to the example shown in drawing 8 at drawing 2 shown in drawing 9 at drawing 4 was illustrated.

[0036] In addition, said half-finished products are intermittently cut in the longitudinal direction of Rhine like the conventional technique, and the circumference part of a foot of the body backseat 30 is cut and produced commercially.

[0037] According to the structure of this manufacture mode and barrier cuffs, there is an advantage of degree account.

[0038] (1) Since near the tip of barrier cuffs is double as compared with the conventional example with the whole double barrier cuffs, it is easy to stand up and excel also in a shrinkage force with the small elastic flexible member for barrier cuffs softly at the fit nature to the circumference of a foot.

[0039] (2) Since only the point of barrier cuffs is double as compared with the conventional example with the whole double barrier cuffs, cost decreases.

[0040] (3) The number of clinch parts is two and they become what became simple [ a manufacturing facility ] and was excellent in the product management target.

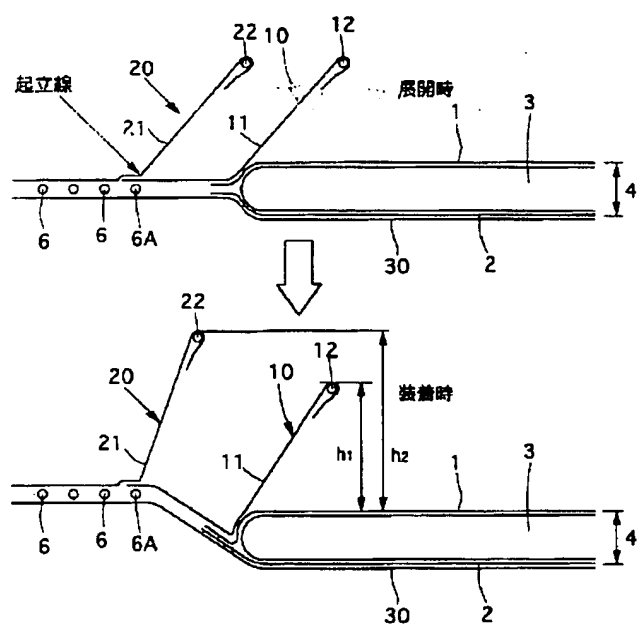
[0041] The example of the manufacture approach of drawing 3, drawing 4, and drawing 5 is shown in drawing 12, drawing 13, and drawing 14, respectively. About these manufacture approaches, since it is clear from each drawing, detailed explanation is not carried out.

[0042]

[Effect of the Invention] According to this invention the above passage, the horizontal leakage prevention effectiveness appears notably.

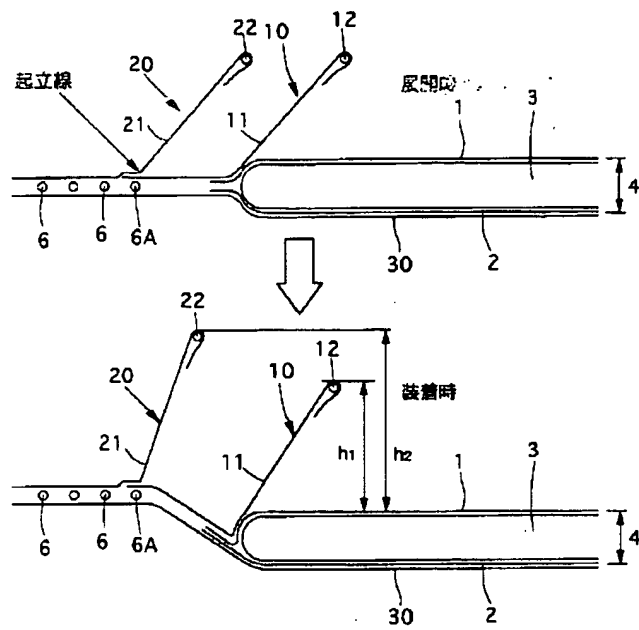
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## Drawing selection Representative drawing



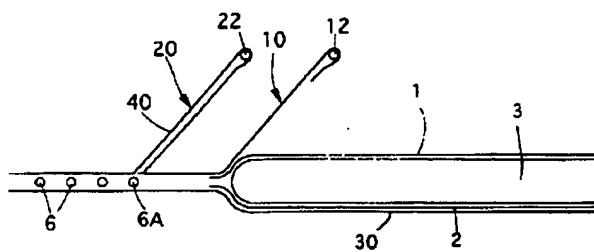
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## Drawing selection drawing 2



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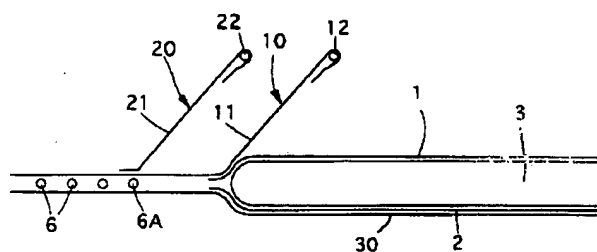
Drawing selection drawing 3



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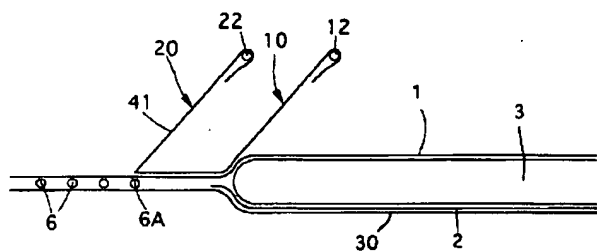


Drawing selection drawing 4



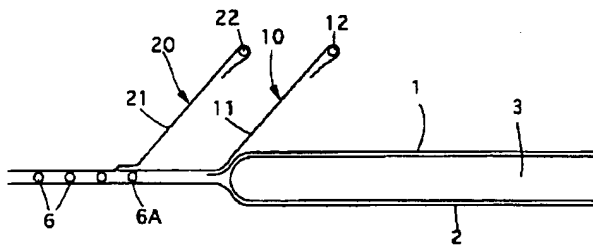
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Drawing selection drawing 5



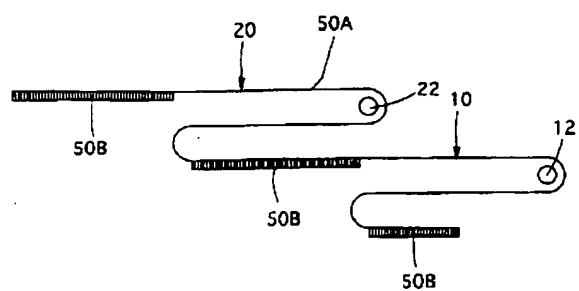
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Drawing selection drawing 6



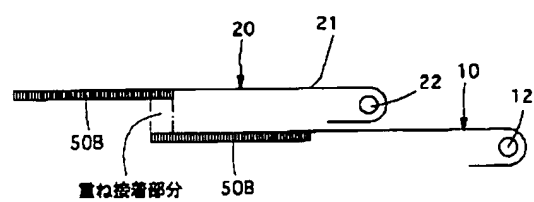
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Drawing selection drawing 7



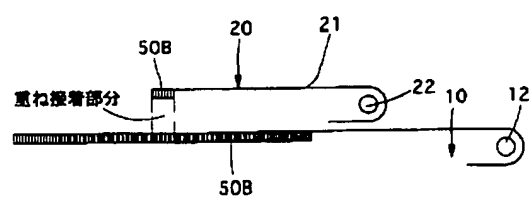
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Drawing selection drawing 8



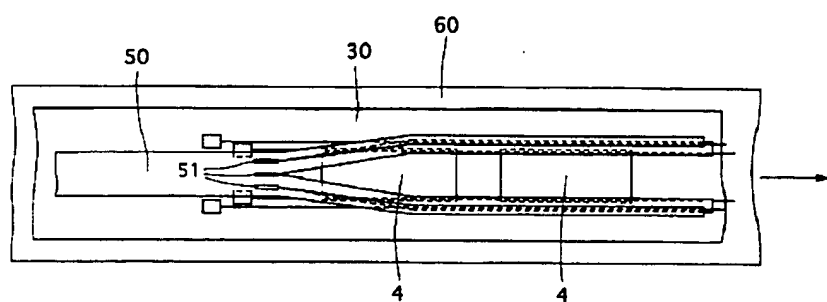
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Drawing selection drawing 9



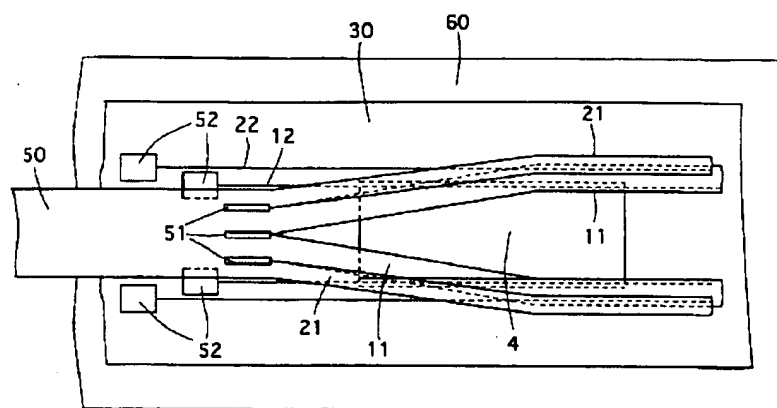
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Drawing selection drawing 10



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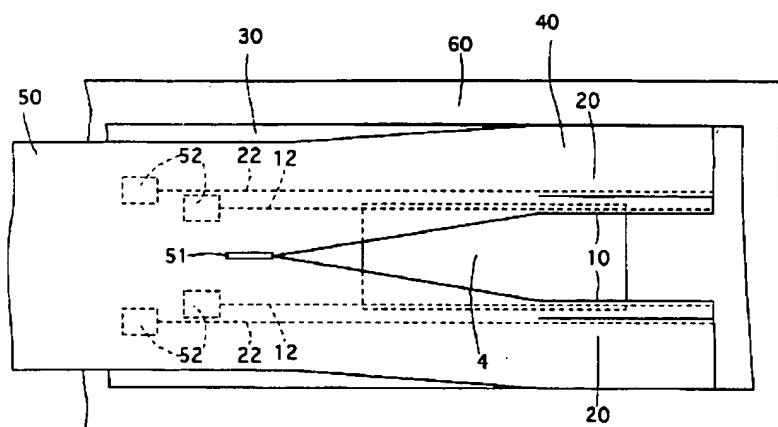
Drawing selection drawing 11



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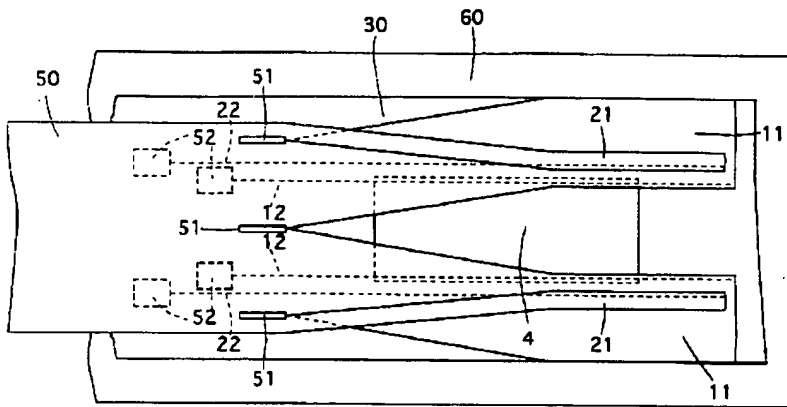


Drawing selection drawing 12



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Drawing selection drawing 13



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